IN THE CLAIMS

The claims pending in the application are reproduced below for the convenience of the Examiner:

1. (original) A method for estimating coil sensitivities in a magnetic resonance imaging system comprising:

locating an edge pixel within one or more columns or rows of a magnetic resonance image; and

calculating a sensitivity function describing coil sensitivity for the edge pixel based upon two or more fitting pixels inward of the edge pixel.

2. (original) The method of claim 1, wherein the edge pixel is located based upon a threshold intensity value such that an intensity value of the edge pixel equals or exceeds the threshold intensity value and an intensity value of a pixel adjacent and outward from the edge pixel does not exceed the threshold intensity value.

3. (original) The method of claim 1, wherein the magnetic resonance image is a low-resolution image.

4. (original) The method of claim 3, wherein the low-resolution image is a calibration image.

5. (original) The method of claim 1, wherein the sensitivity function is a linear extrapolation.

6. (original) The method of claim 5, wherein a spacing distance comprising one or more spacing pixels separates the two or more fitting pixels and the edge pixel.

7. (original) The method of claim 6, wherein the spacing distance comprises ten spacing pixels and the two or more fitting pixels comprises three fitting pixels.

8. (original) The method of claim 6, further comprising replacing a measured sensitivity associated with each of the one or more spacing pixels and the edge pixel with a respective calculated sensitivity derived from the linear extrapolation.

9. (original) The method of claim 5, further comprising assigning a respective extrapolated sensitivity to each of one or more outer pixels disposed outward from the edge pixel.

10. (original) The method of claim 9, wherein the one or more outer pixels comprises fifteen outer pixels.

11. (original) A method for generating an enhanced sensitivity matrix for an object comprising:

obtaining an initial calibration image of the object;

locating at least one object edge within one or more columns or rows of the calibration image, wherein the object edge comprises an object edge pixel;

calculating a sensitivity function for each object edge based upon the measured sensitivity of two or more fitting pixels located inward of the object edge pixel; and

assigning a respective sensitivity value derived from the sensitivity function to each of one or more outer pixels located outward from the object edge pixel.

12. (original) The method of claim 11, wherein obtaining the initial calibration image comprises scanning a subject at reduced resolution.

13. (original) The method of claim 11, wherein each object edge is determined based upon a threshold intensity value such that an intensity value of the object edge pixel equals or exceeds the threshold intensity value while a pixel adjacent to and outward of the object edge pixel does not exceed the threshold intensity value.

14. (original) The method of claim 11, wherein calculating the sensitivity function comprises extrapolating from the measured sensitivity of the two or more fitting pixels.

15. (original) The method of claim 14, wherein the extrapolation is linear.

16. (original) The method of claim 14, wherein the two or more fitting pixels comprises three fitting pixels.

17. (original) The method of claim 14, wherein a spacer region comprising one or more spacer pixels separates the respective object edge pixel and the two or more fitting pixels.

18. (original) The method of claim 17, wherein the spacer region comprises 10 spacer pixels.

19. (original) The method of claim 17, wherein a measured sensitivity value for each of the one or more spacer pixels and for the object edge pixel is replaced by a respective calculated sensitivity value derived from the extrapolation.

20. (original) The method of claim 11, further comprising replacing a measured sensitivity value of each of one or more spacer pixels disposed between the object edge pixel and the two or more fitting pixels with a respective calculated sensitivity value derived from the sensitivity function.

21. (original) The method of claim 11, wherein the one or more outer pixels comprises fifteen pixels.

22. (previously presented) A magnetic resonance imaging system capable of estimating coil sensitivities, the system comprising:

a magnetic resonance scanner capable of generating a calibration image; and

an analysis circuit capable of processing the calibration image by locating an edge pixel within columns or rows of the calibration image and of calculating a sensitivity function from two or more fitting pixels disposed inward of the edge pixel, wherein the sensitivity function describes coil sensitivities near the edge pixel.

23. (original) The magnetic resonance imaging system of claim 22, wherein the analysis circuit locates the edge pixel based upon a threshold intensity value.

24. (original) The magnetic resonance imaging system of claim 22, wherein the calibration image is a low-resolution image.

25. (original) The magnetic resonance imaging system of claim 22, wherein the analysis circuit calculates the sensitivity function by extrapolating from two or more measured sensitivities of the respective two or more fitting pixels.

26. (original) The magnetic resonance imaging system of claim 25, wherein the extrapolation is linear.

27. (original) The magnetic resonance imaging system of claim 22, wherein a spacing distance comprising one or more spacing pixels is disposed between the two or more fitting pixels and the edge pixel.

28. (original) The magnetic resonance imaging system of claim 27, wherein the analysis circuit further processes the image by replacing a measured sensitivity associated with each of the one or more spacing pixels and the edge pixel with a respective calculated sensitivity derived from the sensitivity function.

29. (original) The magnetic resonance imaging system of claim 22, wherein the analysis circuit further processes the image by assigning a respective calculated sensitivity derived from the sensitivity function to each of one or more outer pixels disposed outward from the edge pixel.

30. (previously presented) A magnetic resonance imaging system capable of generating an enhanced sensitivity matrix for a subject, the system comprising:

a magnetic resonance scanner capable of generating a calibration image; and

an analysis circuit capable of processing the calibration image by locating an edge pixel within columns or rows of the calibration image; of calculating a sensitivity function from two or more fitting pixels disposed inward of the edge pixel, wherein the sensitivity function describes coil sensitivity near the edge pixel, and of assigning a respective calculated sensitivity derived from the sensitivity function to each of one or more outer pixels disposed outward from the edge pixel.

31. (original) The magnetic resonance imaging system of claim 30, wherein the analysis circuit locates the edge pixel based upon a threshold intensity value.

32. (original) The magnetic resonance imaging system of claim 30, wherein the calibration image is a low-resolution image.

33. (original) The magnetic resonance imaging system of claim 30, wherein the analysis circuit calculates the sensitivity function by extrapolating from two or more measured sensitivities of the respective two or more fitting pixels.

34. (original) The magnetic resonance imaging system of claim 33, wherein the extrapolation is linear.

35. (original) The magnetic resonance imaging system of claim 30, wherein a spacing distance comprising one or more spacing pixels is disposed between the two or more fitting pixels and the edge pixel.

36. (original) The magnetic resonance imaging system of claim 35, wherein the analysis circuit further processes the image by replacing a measured sensitivity associated with each of the one or more spacing pixels and the edge pixel with the respective calculated sensitivity derived from the sensitivity function.

37. (original) A magnetic resonance imaging system capable of generating an optimized image for a subject, the system comprising:

a magnetic resonance scanner capable of generating a diagnostic image and a calibration image;

an analysis circuit capable of receiving the diagnostic image and the calibration image, the analysis circuit comprising a means for generating an enhanced sensitivity matrix using the calibration image, wherein the analysis circuit corrects the diagnostic image using the enhanced sensitivity matrix to generate a corrected diagnostic image; and

a display circuit capable of receiving the corrected diagnostic image and transmitting the corrected diagnostic image to a suitable display device.

38. (original) The magnetic resonance imaging system of claim 37, wherein the calibration image is a low-resolution image.